

What is claimed is:

1. A multimeric peptidomimetic comprising two or more monomers, wherein said monomers comprise an exocyclic peptide comprising a ring structure, a flexible linker sequence and a multimeric motif.

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2. The multimeric peptidomimetic of claim 1 wherein the multimeric motif is a tetrameric motif.

3. The multimeric peptidomimetic of claim 1 wherein the multimeric motif is selected 10 from the group consisting of streptavidin, fragments thereof, vimenin, fragments thereof, a leucine zipper motif, a human platelet factor motif, a Human Superoxide dismutase motif, and a p53 tetramerizing domains.

4. The multimeric peptidomimetic of claim 3 wherein the multimeric peptidomimetic 15 comprises a multimeric motif that is streptavidin or a fragment thereof, wherein the multimeric motif is bound to a biotinylated drug, a biotinylated toxin, a biotinylated nucleic acid molecule, a biotinylated radionuclide or a biotinylated detectable compound.

5. The multimeric peptidomimetic of claim 1 wherein the flexible linker comprises 4-20 20 amino acid residues.

6. The multimeric peptidomimetic of claim 1 wherein the flexible linker comprises 5-12 amino acid residues.

7. The multimeric peptidomimetic of claim 1 wherein the flexible linker comprises 10 amino acid residues.
8. The multimeric peptidomimetic of claim 1 wherein said multimeric peptidomimetic binds to Her2, EGFR, VEGF, CEA, PSA, HER3, HER4, CD-20, TNF- α , IL-1, TNFR, FAS, RANKL/TRANCE, OPG, CD40, CD28, CD3, CD4, IL-4 or IL-13.
9. A nucleic acid molecule encoding a monomer that comprises an exocyclic peptide comprising a ring structure, a flexible linker sequence and a multimeric motif.
10. A recombinant expression vector comprising the nucleic acid molecule of claim 9.
11. A host cell comprising a recombinant expression vector claim 10.
12. A method of delivering a drug, a toxin, a nucleic acid molecule, a radionuclide or a detectable compound to a cell comprising the step of contacting the cell with a multimeric peptidomimetic of claim 4, wherein said cell expresses a protein which binds to an amino acid sequence present in the exocyclic peptide of a monomer of the multimeric protein.
13. Use of a monomer that comprises an exocyclic peptide comprising a ring structure, a flexible linker sequence and a multimeric motif to produce a multimeric peptidomimetic.
14. A purified recombinant protein having a cell binding domain and a biotin-binding streptavidin core sequence, wherein said cell binding domain comprises an active domain of

a heterologous polypeptide and wherein said cell binding domain is fused to the N- terminus of streptavidin molecule by a flexible linker.

15. The protein of claim 14 wherein said heterologous polypeptide is selected from the
5 group consisting of: antibodies, ligands for cell surface receptors, cell adhesion sequences,
and antigens.

16. The protein of claim 14 wherein said heterologous polypeptide bonds to a protein
selected from the group consisting of: binds to Her2, EGFR, VEGF, CEA, PSA, HER3,
10 HER4, CD-20, TNF- α , IL-1, TNFR, FAS, RANKL/TRANCE, OPG, CD40, CD28, CD3,
CD4, IL-4 or IL-13.

17. The protein of claim 14 wherein the cell binding domain is fused to the streptavidin
wild type polypeptide containing amino acid residues 38 and 163 of SEQ. ID NO:9.
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18. The protein of claim 14 wherein the cell binding domain is fused to the streptavidin
wild type polypeptide containing amino acid residues 41 and 163 of SEQ. ID NO:9.

19. The protein of claim 14 wherein said cell binding domain comprises SEQ ID NO:1.
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20. The protein of claim 14 wherein said cell binding domain comprises SEQ ID NO:10.

21. The protein of claim 14 wherein said cell binding domain is connected to streptavidin
or a fragment thereof via a linker having a linker sequence contains SEQ ID NO:11.
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22. The protein of claim 14 wherein the streptavidin or a fragment thereof is bound to a biotinylated drug, a biotinylated toxin, a biotinylated nucleic acid molecule, a biotinylated radionuclide or a biotinylated detectable compound.

5 23. A tetrameric protein complex comprising a protein of claim 14.

24. A method of delivering a drug, a toxin, a nucleic acid molecule, a radionuclide or a detectable compound to a cell comprising the step of contacting the cell with a tetrameric protein comprising the protein of claim 23, wherein said cell expresses a protein which binds
10 to an amino acid sequence present in the exocyclic peptide of a monomer of the multimeric protein.

25. Use of protein of claim 14 to produce a tetrameric protein.